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Animal Health Solution

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Dental Case Study Series #1: Germantown Farmington Animal Hospital

Oral health care prevents much more than bad breath!

BY LINDA PAPPALARDO & LYNN DOSKY | 8-9

FEBRUARY IS NATIONAL PET DENTAL HEALTH MONTH!

VIDEO http://bit.ly/FEB2015AHS

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Rely on Us™

A tiger with a toothache?

By Peter P Emily, DDS, Hon. AVDC and **Susanne Pilla,** Managing Director PEIVDF

The Peter Emily International Veterinary Dental Foundation (PEIVDF) was founded in 2005 as a private charitable foundation. Dr. Peter Emily, DDS, Hon AVDC AVD, donated the initial funds which formed the private not-for profit foundation in order to continue his life's work promoting the oral and dental health of domestic and captive animals around the world.

The mission of the PEIVDF is to provide life improving advanced veterinary dental care and treatment to exotic animals located in US (and in the future, overseas) captive animal facilities and animal sanctuaries, which are under-funded and/or understaffed from a veterinary perspective. Through these missions, they are also increasing the availability of veterinary dental education through hands-on learning opportunities.

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More and more domestic pet owners are learning about the importance of proper dental care for their four-legged family members. Domesticated animals can suffer from the same oral problems as humans, such as periodontal disease and fractured teeth.

Exotic animals (think lions, and tigers, and bears!) also suffer from oral problems. In the wild, fractured teeth can occur for many reasons, such as from trauma during hunting, or during disputes over territory, or their position in the group social hierarchy. In the wild, survival of the fittest means that something such as an untreated tooth fracture - which could lead to infection that can spread to the heart, liver, and/or kidneys - would leave the animal in a weakened state, less able to defend itself. Fitter animals would prevail, and nature - though seemingly cruel at times - would weed out the weak.

Thousands of exotic animals reside in backyards, garages, and other makeshift facilities, owned by people ill equipped to properly care for such animals. The Humane Society of the US estimates there are at least 10,000 large exotic cats in private ownership throughout the United States. Many captive exotic animals are acquired when they are young, and cute, and comparatively manageable. Eventually though, these cute animals grow to be hundreds of pounds of frustrated wild instinct, railing against their captivity.

For captive exotic animals and even domestic animals, oral trauma can occur out of the stress of captivity. Wild animals, many of the larger species, are very oral expressive. Their dentition is compromised through bites on steel bars, rocks, and other enclosure objects resulting in coronal fractures. This syndrome is exacerbated by smaller enclosures that produce the highly nervous cage-pacing often seen in captive animals. Though their teeth look imposing, the biting force of the jaw is much stronger than tooth material, and fractures easily occur. Just as often, human captors inflict oral trauma. As a result of cruel, misguided efforts to subdue powerful animals, many are struck in the mouth by hard objects, such as bats, steel bars, and shovels. Many captive exotic animals are enslaved by circuses large and small. Training of these animals rarely occurs though love and respect, but rather through fear and violence.

In the US alone, there are hundreds of exotic animal sanctuaries from small to large that care for thousands of exotic animals. Many are acquired as a result of private owner surrender or confiscation, while many are retired circus or film industry animals, as well as surplus zoo animals.

Along with many other animal welfare charities, Animal Defenders International (ADI) is a London-based nonprofit that works to end exploitation and cruel treatment of animals. Their efforts have led to national bans on the use of all animals in travelling circuses in Bolivia and Peru.

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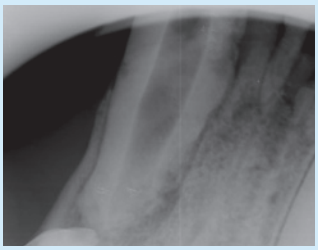
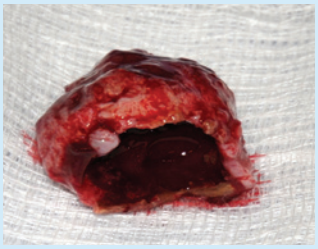
PEIVDF has seen frightening evidence of brutality toward captive exotic animals prior to their rescue by bona fide sanctuaries. **ColoColo** is a male African Lion rescued from one of the many circuses in Bolivia, who was brought - with two dozen other large cats - to live in large, multi-acre open habitats at the Wild Animal Sanctuary (WAS) in Keeneseburg, Colorado. ADI described ColoColo as, "one of the most ill-tempered lions anyone had ever met." When PEIVDF doctors examined him under anesthesia it was easy to see why. One of his large canine teeth had been fractured off at an early age – evident by the width of the canal. Upon the start of root canal therapy, doctors found significant infection and suppurative discharge as a result of the infected root. Root canal therapy was completed, and not 24-hours later, WAS reported that ColoColo was, "playing like a kitten ... and rapidly putting on weight."



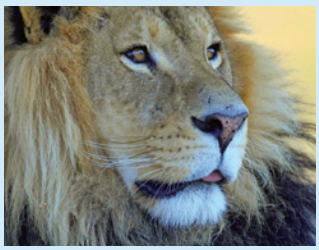


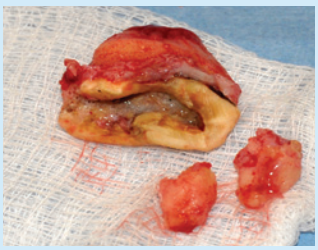

Temuco was another of the lions rescued from Bolivia. Upon arrival, Temuco had carried his left eye partially closed. During examination, PEIVDF doctors found retained fragments of his canine tooth. Through likely no way other than blunt force trauma, Temuco had been struck so hard in the mouth that his canine tooth was fractured and driven up into his nasal turbinates, causing a communication between the nose and the mouth called an oronasal fistula (ONF). PEIVDF doctors removed the tooth fragment and closed the site of the ONF with a palatal flap. WAS reported that upon recovery, Temuco's eye immediately relaxed and he was in general much more energetic.



Pancho was one of the worst cases PEIVDF doctors had seen. Both Pancho's upper right and lower left molars were completely shattered. It is so unlikely as to be statistically insignificant that this could happen as a result of anything other than blunt force trauma to his mouth, at least twice – once on the right, and again on the left side of his face. Additionally, Pancho had likely been struck at least a third time, so hard that his canine tooth was fractured, and as with Temuco, driven up into his nasal turbinates, with fragments left behind. The resulting infection from the ONF had completely destroyed the tissue around it. Innovative double flaps had to be created, and holes drilled into the bone into which the flaps were sutured. Six months post-surgery, the tissue at the surgical site was healthy and completely healed.






These are just a few of the cases that PEIVDF has treated since beginning its teaching mission program in 2008 – Veterinary Dentistry Without Borders. Unfortunately, exotic animal dentistry is often a neglected area in veterinary education and practice. The diverse dental findings as to endodontic morphology, occlusal, and radicular forms, tooth sizes, and numbers of teeth all complicate exotic dentistry. Difficulty in obtaining routine oral examination to intercept developing problems along with routine dental maintenance is a large factor. Poor financial rewards, lack of exotic dental knowledge, and education, all contribute to the problem. This is exacerbated by the fact that a vast amount of specialized instrumentation and supplies are required to adequately perform a vast number of potential procedures on so many species, making exotic animal dentistry an expensive field of specialization.

All of the dental disciplines practiced in human and small animal dentistry can be practiced in exotic animal dentistry. However, the many dental morphological and pathological differences seen in the various species create treatment problems that can extend far beyond routine procedures. Dental problems can be multiple, complex, and often unseen in domestic small animal dentistry. Therapy can be complicated by limited oral access in some species. Most exotic animal caretakers are understandably untrained and unable to recognize developing dental problems. This results in advanced dental pathology before the condition becomes clinically evident. Consequently, therapy is more difficult and often with a guarded degree of success.

Most forms of periodontal disease seen in domestic animals can be found in exotic animals, with treatment similar to that seen in humans - especially with primates. Primates display periodontal disease very similar to humans. Extensive periodontitis with severe bone loss can be severe in primates, especially in orangutans. This is accompanied with the usual symptoms of bacterial infection and general malaise. Periodontal therapy is diverse, ranging from simple prophylaxis to advanced flap procedures with bone augmentation, lateral sliding flaps, and advanced flap procedures with surgical exodontia. Cases of gingival hyperplasia can be treated with either electro surgery or sharp dissection.

Endodontic disease comprises sixty to seventy percent of all exotic animal dentistry. Exotic animals are very susceptible to endodontic problems. Endodontically involved teeth usually go undetected until facial swelling, oral bleeding, or draining fistulous tracts become clinically evident. Familiarization with the multiple differences in the endodontic system of the various species is essential; many will need endodontic therapy at some time. These differences not only present in tooth size, but in external, apical, and endodontic morphology.

Treatment of endodontic problems can be somewhat routine in species with dentition similar to those found in domestic animals. Early detection of endodontic disease in Canidae, Hyaenidae, and small Felids, (Acinonyx, Lynx Rufus and Canadensis, Ocelot, and Serval) are treated with endodontic techniques similar to those performed on domestic Canids and Felids. Treatment becomes increasingly involved in advanced lesions where endodontic and radicular morphology is unknown. Also large species where repeated inductions are dangerous to the animal's surgical survival present additional problems. Endodontic therapy must ensure a successful result with one induction. Therefore endodontic therapy generally is both conventional and surgical to ensure as successful a result as possible.

Avians present primarily with lost or fractured beaks. Replacement of lost beak segments can be performed with dental acrylic, threaded pins, ligature wire and cyanoacrylate. Congenital or traumatic malocclusion or "cross beak" is not uncommon, especially in parrots. Active rubber orthodontic ligatures and threaded pin anchors can effectively correct this form of malocclusion. Like birds, the most common dental problem seen in reptiles is oral trauma. The same principals of repair as employed in avian dentistry are utilized. For example turtles can present with "beak" fracture. Dental acrylics, threaded wire, and cyanoacrylate can work miracles with these cases. Although not a dental procedure, the repair of fractured turtle shells with dental materials is a common procedure.

Unlike domestic animals, exotic animals have no owners to pay for their care. Most animal sanctuaries struggle to simply feed, house, and provide basic medical care. Therefore, veterinary students do not feel it is economic viable to study and practice exotic animal dentistry. Consequently, exotic animal dentistry is not being taught in veterinary schools, leading to a marked under-supply of qualified practitioners.

Hands-on training is essential to acquiring these skills. Nowhere else but on PEIVDF veterinary dental teaching missions can practitioners acquire hands-on training in multiple exotic species, while provide life-improving veterinary dental care to these animals in need. However, these skills take time to learn. As a result, PEIVDF needs to broaden its offering of missions and grow in a controlled manner, so as not to be flooded with requests for treatment that cannot be fulfilled in a timely manner.

In just over 6 years, PEIVDF has conducted 39 missions at 16 sanctuaries, treating 224 animals by performing 343 root canal therapies, 201 unavoidable extractions, and 89 other procedures. Given the size of our instructor, practitioner, and student base, this is pretty impressive. But, it's just a drop in the bucket compared to the size of the current and on-going need at the hundreds of sanctuaries and zoos.

Humans will also continue to illegally acquire and breed animals, despite lawmaker efforts, which will unfortunately ensure a continuing supply of animals to already overstretched sanctuaries. It is through human intervention that these animals find themselves in captivity, and so it is through human intervention that we must do what we can to improve their lives through care and treatment by qualified organizations.

For more information on how to help or about upcoming missions, visit: www.peivdf.org

About the Author Dr. Emily is an accomplished human and veterinary dentist with a career spanning over 40 years. Widely known as the Grandfather of Animal Dentistry, he received his Doctor of Dental Surgery from Creighton University in Omaha Nebraska and his Certificate of Periodontology from the University of Pennsylvania. Dr Emily and two others developed the College of Veterinary Dentistry exams, which are still in use today, and Dr. Emily is an honorary diplomate of the American Veterinary Dental College.